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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,825	08/07/2001	Cecil M. Daniel	20-EB-2086/624226-245	1293

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EXAMINER	
STERRETT, JONATHAN G	

ART UNIT	PAPER NUMBER
3623	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/923,825	DANIEL ET AL.	
	Examiner	Art Unit	
	Jonathan G. Sterrett	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 August 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Summary

1. Claims 1-16 are pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Pintelon** in view of **Birkland.**

Birkland, Carol, "Using (electronic) magic wands", August 1996, Fleet Equipment; 22, 8; ABI/INFORM Global, p.30.

Pintelon, Liliane; Du Preez, Niek; Van Puyvelde, Frank; "Information Technology: Opportunities for Maintenance Management", 1999, Journal of Quality in Maintenance Management, Bradford, Vol 5, Iss. 1; p. 9 ProQuest ID 86926406.

Regarding **Claim 1**, Pintelon teaches:

providing a database accessible from the equipment work site, the database comprising detailed data for health assessment and servicing of selected equipment,

page 4 paragraph 1 line 4, databases used for determining optimum preventative maintenance policy, i.e. detailed data for health assessment and servicing of selected equipment (see line 5, MTBF data, i.e. detailed data, contained in database.

Page 4 paragraph 1 line 7-9, IT networking makes these databases very accessible, including from the equipment work site.

the database further comprising technical and business decision-making data regarding the service capabilities and availability,

Page 4 paragraph 1 line 3-4, aspects to be considered in applying decision support to maintenance planning, including the use of low cost databases, include availability of workers, facilities and parts availability.

and costs of transportation to and servicing of equipment at available work sites for servicing the selected equipment;

Page 3 paragraph 4 line 7, the cost of maintenance logistics (including transportation and servicing) enters into the decision of replacement costs versus repair costs.

Page 3 paragraph 5 line 2-4, maintenance planning includes taking into direct costs associated with performing maintenance. Direct costs include transportation and servicing costs associated with providing maintenance.

determining based on the technical and business decision-making criteria each preferred work site;

Page 4 paragraph 2 line 7-9, the decision support system uses OR models to support the determining of scheduling of maintenance based on

availability of workers (i.e. including at different sites) –see also line 3 scheduling includes determining who will provide maintenance.

and further providing in response to a second set of prompts at least one set of technical and business decision-making criteria, including the cost and timeliness for performing services that may be required for the selected equipment;

Page 4 paragraph 2 line 1-2, maintenance scheduling provided by OR model includes timeliness of performing the maintenance service. –see page 3 paragraph 5 line 2-4, optimum maintenance policy in the decision support system provides cost control, i.e. providing direct costs of associated with performing maintenance services for the selected equipment.

and processing said observation information, and said technical and business decision-making criteria relative to the servicing wizard to determine whether or not the selected equipment needs to be serviced, and if so the nature and extent of that service, said processing further determining a preferred work site from among the available work sites at which to perform the service in accordance with the technical and business decision-making criteria.

Page 4 paragraph 2 line 8-9, the decision support system provides online information on production planning (i.e. production planning including the scheduling of maintenance services at various sites) –see also page 2 paragraph 4 line 2-4, maintenance management requires interaction (i.e. integration) with

other systems across the business enterprise, the business enterprise including any and all work sites.

Pintelon does not teach:

configuring a servicing wizard for eliciting information regarding the identity and characteristics of the equipment to be repaired,

providing instructions to the service personnel to determine the nature of the equipment fault and the servicing required for the equipment, and

providing an input/output device at each work site for communicating with the database;

selecting the equipment to be serviced;

accessing the database to interface with the servicing wizard for the selected equipment;

providing in response to a first set of prompts to the personnel from the servicing wizard at least one set of observations selected from the group comprising operational performance of the selected equipment and fault indications detected in the equipment,

Birlkland teaches:

configuring a servicing wizard for eliciting information regarding the identity and characteristics of the equipment to be repaired,

Page 31 paragraph 2 line 11-16, Caterpillars MS™ windows-based system provides a servicing wizard for eliciting identity and characteristics of the equipment to be repaired.

providing instructions to the service personnel to determine the nature of the equipment fault and the servicing required for the equipment, and

Page 31 paragraph 2 line 16-18, guided troubleshooting provided to service personnel. Troubleshooting includes determining the nature of the fault and the servicing required.

providing an input/output device at each work site for communicating with the database;

Since the above wizard is MS windows™ based, it would run on any device running windows (i.e. a personal computer, a windows™ CE handheld device, or a laptop).

selecting the equipment to be serviced;

since the above wizard is providing troubleshooting using guided diagnostics, it requires that a piece of equipment be selected in order for the guide to be utilized (see line 17-18, troubleshooting based on symptoms or product history (i.e. of the equipment selected to be serviced).

providing in response to a first set of prompts to the personnel from the servicing wizard at least one set of observations selected from the group comprising operational performance of the selected equipment and fault indications detected in the equipment,

The troubleshooting guide discussed above provided by the windows™ based software would include observations of operational performance (i.e. symptoms) and fault indications (line 9-10 software reads fault codes)

Both Pintelon and Birkland address applying computer technology to improving maintenance management, and thus both are analogous art.

Pintelon teaches that the application of Operations Research models to maintenance management can optimize cost and scheduling (page 4 paragraph 1 line 2-4).

Birland teaches that the advent of computer technology in the maintenance shop shows technicians how to provide maintenance on vehicles to effect a repair (page 30 paragraph 1 line 7-13).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Pintelon, regarding using a database in maintenance management to provide for the determination of cost and location scheduling of maintenance based on operations research models, to include the step of utilizing the specific repair information input into an interface device that details equipment repair and servicing information for a specific piece of equipment, because it would optimize the technical and business decision criteria

associated with the scheduling (including location, timeliness and cost) of maintenance for the piece of equipment.

Birkland and Pintelon do not explicitly teach the servicing wizard residing in a database. However Official Notice is taken that it is old and well known in the art of IT to access a database to interface with a wizard. Databases provide efficient ways to store massive amounts of information, including the information necessary to provide a troubleshooting or repair wizard.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the collective teachings of Birkland and Pintelon, regarding applying computer technology and operations research to maintenance management to include the step of accessing repair wizard information in a database, because it would provide and efficient and fast means to access the wizard information to troubleshoot a maintenance problems.

Regarding **Claim 2**, Pintelon teaches:

wherein each work site is connected to one another as a networked chain of sites.

Page 3 paragraph 3 line 4, computer networks provide for physical decentralization of maintenance departments (i.e. a networked chain of maintenance sites) – see also page 4 paragraph 1 line 7-9, IT networks provide connectivity to maintenance databases.

Regarding **Claim 3**, Pintelon teaches:

wherein the chain of work sites includes work sites managed by independent business entities.

Page 3 paragraph 3 line 2-3, each business unit (i.e. independent business entities) manages its own maintenance supplies and maintenance.

Regarding **Claim 4**, Pintelon does not teach:

Identifying servicing practices gathered from the chain of work sites and evaluating the value of such practices based on the technical and business decision-making criteria.

Official Notice is taken that the concept of evaluating servicing practices based on technical and business decision-making criteria is old and well known in the art of management. The concept of benchmarking servicing practices provides evaluation of those practices along business and technical decision making criteria. Benchmarking internal practices, including servicing practices provides an effective way to identify and correct those practices most in need of improvement.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the collective teachings of Birkland and Pintelon, regarding applying computer technology and operations research to maintenance

management to include the step benchmarking the value of servicing practices, because it would provide a way to identify and correct the servicing practices most in need of improvement.

Regarding **Claim 5**, Pintelon teaches:

updating the database to include any preferred servicing practices gathered from the work sites to share uniformly high quality service practices across the work sites.

Official Notice is taken that it is old and well known in the art of management to identify and propagate 'best practices' across various departments and work sites to encourage the adoption of those practices deemed to be the most effective practices.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the collective teachings of Pintelon and Birkland regarding providing a maintenance management system to include the step of using the database to include and share best practices (i.e. preferred servicing practices) across various work sites because it would promote effectiveness of equipment servicing.

Regarding **Claim 6**, Pintelon teaches:

accumulating in the database historical repair and/or service data, and including any diagnostics data for each respective equipment.

Page 3 paragraph 6 line 10-12, historical information on equipment failure and repair characteristics is maintained in a database.

Page 2 paragraph 7 line, a computerized diagnostic support system is used.

Regarding **Claim 7**, Pintelon does not teach:

assigning a computer-readable tracking identifier to each respective equipment so that service personnel may retrieve using the tracking identifier the historical data for any respective piece of equipment regardless of the location of the work site.

Official Notice is taken that it is old and well known in the art of maintenance of equipment to use a computer-readable tracking identifier to identify a specific piece of equipment. This is typically done through the equipment's serial number, which provides a unique identifier of that piece of equipment to aid in identification. The serial number can either be encoded with a bar code (i.e. computer readable) or an RFID tag to enable the unique identifier to be easily read.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the collective teachings of Pintelon and Birkland regarding

providing a maintenance management system to include the step of using a computer readable equipment identifier to enable a service technician to quickly and easily identify the piece of equipment.

Regarding **Claim 8**, Pintelon teaches:

Performing analysis on the historical data so as to determine servicing trends as a function of any respective work site location.

Page 6 paragraph 5 line 7-9 & 11-13, performance reporting (i.e. of historical data) is provided by maintenance management systems. This reporting allows for diagnosis (i.e. analysis) to determine if something is likely to go wrong (i.e. determining a service trend).

Claims 9-16 recite similar limitations as those recited in **Claims 1-8** above, and are therefore rejected under the same rationale.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bylinsky, Gene, "Fixing Machines from Afar", Aug 17, 1998, Fortune, vol. 138, Iss. 4, p174B, ProQuest ID 32495098.

"Rockwell Automation and PSDI form strategic alliance", January 21, 2000, pp.1, www.nasatech.com/NEWS/Jan00/ntb.rckwl0121.html.

Dilger, Karen Abramic, "Portable Maintenance", Dec 1997, Manufacturing Systems, Vol. 15, Iss. 12, p.20, ProQuest ID 23622757.

Crane, Todd; Eilenberg, Jeff; "Locomotive 6724, where are you? Integration of GPS, Mobile Telemetry, and GIS technologies in a railroad environment", 1997, Proceedings from the 1997 Users Conference, Paper 584, pp.1-9, gis.esri.com/library/userconf/proc97/proc97/to600/pap584/p584.htm.

Barbito, Karin; Rogosky, Donna; "Remote visual inspection – an eye for steam generator maintenance", Jan 1999, Nuclear Engineering International, Dartford, Vol. 44, Iss. 534, p.21, ProQuest ID 39010996.

King, Julia, "Maintenance Software gets Hot New Image", Jan 15, 1996, Computerworld, Vol. 30, Iss. 3, p.52, ProQuest ID 9124135.

Mediate, Joseph, "Using wireless communications to automate plant maintenance", Sept 1997, Plant Engineering, Vol 51, Iss. 10, p.143, ProQuest ID 16039040.

Kuebler, George, "Mill Maintenance for the New Millenium", Apr 1999, Metal Producing; 33, 4: Career and Technical Education, p.34.

BusinessWire, "Computer Associates Announces UniFleet, Automotive Industry's Most Advanced Fleet Management Solution", Mar 1, 1999, New York, p.1, ProQuest ID 39343047.

Barron, Jim, "Troubleshooting for the Pro", April 1998, Trailer Boats, Vol. 27, Iss. 4, p. 22, ProQuest ID 28371440.

Franklin, Scott, "CMMS selection: Building a solid foundation", June 1999, Maintenance Solutions, Vol. 7, Iss. 6, p.20, ProQuest ID 43613137.

Smith, Gary; Schroeder, JB; Masquelier, Barbara L; "Logistics for the Joint Strike Fighter—it ain't business as usual", Spring 1999, Air Force Journal of Logistics, Gunther AFS, Vol. 23, Iss. 1, p. 13, ProQuest ID 56366195.

Pepper, Jeff; "The age of intelligent machines: an expert system for Automotive Diagnosis", Excerpt from Ray Kurzweil's revolutionary book "The Age of Intelligent machines" published in 1990, www.kurzweilai.net/articles/art0310.html?printable=1.

Moore, N.A.; Perakis, A.N.; "Development of a diesel engine reliability database (DEREL) for the US Coast Guard", Summer 1999, Marine Technology and SNAME News, Vol. 36, Iss. 3, p.127, pp.1-21, ProQuest ID 46542236.

Tortello, Enzo; Bleakley, Graham; "Moving from planned to predictive maintenance", Aug 1998, Modern Power Systems, Vol. 18, Iss. 8, p.55, ProQuest ID 35275604.

Rivero, Ramon R; "Using the Web to improve sustainment logistics", Mar/Apr 1998, Army Logistician, Vol. 30, Iss. 2, p.27, ProQuest ID 29198916.

Singer, Tom; "Breaking with Tradition: Tap into the Internet to maximize your CMMS", Mar 1998, Plant Engineering, Vol. 52, Iss. 3, p. 44, ProQuest ID 28669101.

Trunk, Christopher, "The nuts and bolts of CMMS", Sep 1997, Material Handling Engineering, Vol. 52, Iss. 9, p. 47, ProQuest ID 13955401.

Karl, Steven V; Lewis, Matthew W; "Redesigning PMCS", July/Aug 1997, Army Logistician, p. 16, ProQuest ID 13119940.

Luxhoj, James T; Williams, Trefor P; Shyur, Huan-Jyh; "Comparison of regression and neural network models for prediction of inspection profiles for aging aircraft", Feb 1997, IIE Transactions, Vol. 29, Iss. 2, p. 91, ProQuest ID 11314260.

Prickett, Paul; "A Petri-net based machine tool maintenance management system", 1997, Industrial Management + Data Systems, Vol. 97, Iss 4, p. 143, ProQuest ID 117542192.

Kathawala, Yunus; Allen, William R; Motwani, Jaipeep; "Expert Systems: Applications in Quality", 1993, The International Journal of Quality & Reliability, Vol. 10, Iss. 7, p.32, ProQuest ID 1123102.

Andel, Tom, "Maintenance Management tools stop dollar drain", Sept 1996, Transportation and Distribution, Vol. 37, Iss. 9, p.63, Proquest ID 10341882.

Watt, Lewis C.; "New maintenance technologies: Sustaining a 21st century Marine Corps", Jan 1999, Marine Corps Gazette, Vol. 83, Iss. 1, p.36, ProQuest ID 38038719.

US 5920846 by Storch discloses a method and system for processing a maintenance request.

US 6879962 by Smith discloses a logistics method.

US 5122976 by Bellows discloses a remote diagnostic system.

US 5812758 by Laureanno discloses a system level and troubleshooting method.

US 6298308 by Reid discloses a diagnostic network with proactive experts.

US 6397131 by Busch discloses a vehicle inspection diagnostic method.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan G. Sterrett whose telephone number is 571-272-6881. The examiner can normally be reached on 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 571-272-6729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JGS 8-10-2005

Susanna Diaz

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